DOCUMENT RESUME

ED 198 405 CG 014 922

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TITLE A Self-Reinforcement Deficit in Depression: Fact or Artifact?
PUB DATE Sep 80
NOTE 26p.: Paper presented at the Annual Convention of the American Psychological Association (88th, Montreal, Quebec, Canada, September 1-5, 1980).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Affective Measures; Behavior Patterns; *Depression (Psychology); *Emotional Disturbances; *Interpersonal Competence; Performance; Psychopathology; Punishment; *Reinforcement; *Self Esteem; *Self Evaluation (Individuals); *Social Adjustment

ABSTRACT

The constructs of self-reinforcement and social skill have received increasing attention from researchers concerned with the etiology and maintenance of depression. These two variables, however, have not been empirically related. The relationship between depression, self-reinforcement, and social skill was examined with an interpersonal task. Depressed and nondepressed subjects participated in dyadic interactions; following the session, they viewed a videotape of their interaction and were given the chance, at 30-second intervals, to reward or punish themselves for their performance. Results provided only partial support for theories postulating a low, performance-independent level of self-reinforcement among depressives. Although levels of social skill and self-reinforcement were related, the lower the rate of self-reinforcement among the depressed subjects could not be fully accounted for by a lower level of social skill. The rate of self-reinforcement may be more strongly related to perception of performance than to actual performance level. (Author/CS)

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ED198405

A Self-Reinforcement Deficit in Depression: Fact or Artifact?

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Paper presented at the 88th Annual Convention of the American Psychological Association, Montreal, Canada, September, 1980.

CG 014922

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A self-reinforcement deficit in depression: Fact or artifact?

Of all the psychiatric symptoms, depression is by far the most common (Shave, 1974). Lehmann (1971) has estimated the prevalence of depression as ten times greater than that of schizophrenia, while Beck (1973) states that at least 12 per cent of the general population will experience an episode of depression of sufficient clinical severity to warrant treatment. Lehmann has observed that the death rate from all causes for female depressives is twice, and for males three times, the normal rate. When one considers the various diagnostic categories of which depression is an intricate part or is frequently associated, and the number of patients who show, on careful scrutiny, a masked or subclinical form, the problem of depression is truly great.

Recent psychological approaches to understanding the etiology and maintenance of depression have focused on the construct of reinforcement. Ferster (1973) and Lazarus (1968), for example, suggest that a loss in the number of reinforcers available in an individual's environment results in a reduced frequency of many normal activites, a major characteristic observed in most depressed people. In a similar vein, Costello (1972) has proposed that the depressed person's general loss of interest in the environment is a function of a loss of reinforcer effectiveness. Costello, then, distinguishes between a reduction in the number of reinforcers available to the individual, and a reduction in the effectiveness of available reinforcers. It is the latter loss which Costello regards as the fundamental mechanism underlying depression.

The concept of reinforcement is qualified in Lewinsohn's (e.g., Lewinsohn, 1974; Lewinsohn & Atwood, 1969; Lewinsohn, Weinstein, & Alper, 1970) model of depression. Lewinsohn argues that a low rate of response-contingent positive

reinforcement elicits many of the cognitive and somatic manifestations of depression and serves as a sufficient explanation for the low rate of behaviour of the depressed individual, who is considered to be on a prolonged extinction schedule.

In a recent formulation of depression, Rehm (1977) has utilized the construct of self-reinforcement in explaining the development of this disorder. According to this model, nondepressed persons frequently administer rewards (overt and/or covert) to themselves contingent on meeting self-evaluative criteria, and occasionally administer punishments (overt and/or covert) to themselves contingent on failure to meet self-evaluative criteria. By these processes, nondepressed individuals maintain normal rates of behaviour in the relative absence of external control, and are able to suppress unproductive behaviour in pursuing long-term goals. Rehm suggests that depressed individuals, on the other hand, may be characterized by relatively low rates of self-reinforcement and relatively high rates of self-punishment. Rehm argues that low rates of self-reward account in part for the slowed rates of overt behaviour which typify depression. Depressive symptomatology such as lower general activity level, few response initiations, longer latencies, and less persistence may all be interpreted as resulting from low rates of self-reinforcement. In terms of self-punishment, Rehm suggests that because the depressed individual may selectively monitor negative feedback and set stringent self-evaluative criteria, potentially productive behaviour may be suppressed early in a response chain, resulting in excessive inhibition.

Several studies have offered evidence of a self-reinforcement deficit in depression. Rozensky, Rehm, Pry, and Roth (1977), for example, asked depressed and nondepressed medical patients to self-reward and self-punish their responses on a word recognition memory task. Although no group differences were found with respect to the number

of correct responses, depressed patients administered fewer self-rewards and more self-punishments for their responses than the nondepressed patients. Roth, Rehm, and Rozensky (Note 1) replicated this procedure with university students varying in degree of depression, and found that depressed subjects administered more self-punishment than did nondepressed subjects. In a similar study, Nelson and Craighead (1977) found that depressed university students self-reinforced less than nondepressed students on an ambiguous laboratory task. Finally, Jones and Thelen (1978) induced feelings of elation, depression, or neutrality in university students, and examined their self-reinforcement and self-punishment behaviour on a subsequent word association task. Jones and Thelen found that subjects in the elation condition awarded themselves the highest rate of reinforcement and the lowest rate of punishment, and subjects in the depression condition administered the highest rate of self-punishment.

These studies suggest that depressed subjects administer less self-reinforcement and/or more self-punishment than do their nondepressed counterparts, and thereby provide some support for this aspect of Rehm's self-control model of depression. This support, however, must be tempered by several limitations of these investigations which need to be taken into consideration. The controlled investigations of self-reinforcement in depression, for example, have typically used depressed and nondepressed university students as subjects. These students were exhibiting at best (or at worst) only mild depressive symptomatology, and several investigators have recently questioned the applicability of experimental results obtained with mildly depressed university students to a clinically depressed population (c.f., Buchwald, Coyne, & Cole, 1978; Depue & Monroe, 1978; Gotlib & Asarnow, 1979). At issue here are the assumptions that there is a single continuum running from happiness to severe clinical depression and that elevated scores on a self-rated depression scale in

university students have the same meaning as elevated scores in clinical patients. Suarez Crowe, and Adams (1978), in fact, have presented data suggesting that results obtained with depressed university students may not even be generalizable to a non-student population at the same level of depression. Clearly, further research is required in order to examine self-reinforcement processes in a population of clinically depressed patients.

The investigations in this area are also limited by the fact that they have examined self-reinforcement tendencies in only depressed and nondepressed subjects. This experimental procedure leaves open the possibility that the obtained depression-associated deficits in self-reinforcement are a feature of psychopathology in general, rather than a characteristic unique to depression. Thus, while Rehm and his associates cite evidence to suggest that depressed individuals self-reinforce at a lower rate than nondepressed individuals (c.f., Roth et al., Note 1; Rozensky et al., 1977), Barling and Fincham (1979) found that university students scoring low on Barling's Need Hierarchy questionnaire, a measure of general psychological adjustment, administered fewer self-reinforcements than did students scoring high on the questionnaire. This raises the possibility that deficits in self-reinforcement are not unique to depression, but rather are characteristic of global psychopathology. It is important, therefore, that self-reinforcement be investigated not only in depressed individuals and nondepressed "normals", but in nondepressed individuals who are exhibiting other forms of psychopathology (e.g., nondepressed psychiatric patients) as well.

Finally, the possibility exists that the low rate of self-reinforcement found in depressed subjects in previous investigations is not independent of actual level of performance. In these studies, self-reinforcement was assessed with respect to performance in an impersonal memory

task, and was generally found to be unrelated to actual task performance. Recent research has demonstrated, however, that depressives perform differently on interpersonal as opposed to impersonal tasks (e.g., Gotlib & Asarnow, 1979; Rizley, 1978), raising the possibility that different cognitive processes are involved in performance on these two types of tasks. It is not clear, then, that, if assessed on an interpersonal task, depressed individuals would demonstrate the same deficit in self-reinforcement that they manifest on an impersonal task. Furthermore, given the results of a number of studies conducted by Lewinsohn and his colleagues (e.g., Libet & Lewinsohn, 1973; Youngren & Lewinsohn, 1980) which demonstrate that depressed individuals are less socially skillful than nondepressed persons, it may be that on an interpersonal task, low levels of self-reinforcement in depressed subjects reflect actual performance deficits. That is, if depressed subjects were found to manifest a low level of self-reinforcement on an interpersonal task, this deficit may be warranted by a lower level of actual performance, a lower level of social skill. If, in fact, this proves to be the case, the primary deficit in depression may not be one of self-reinforcement, but rather, may be, as Lewinsohn maintains, a performance deficit, a deficit in social skills.

The present study, then, was designed to examine the relationship between clinical depression, self-reinforcement, and social skill on an interpersonal task. In addition, issues concerning the specificity of deficits in self-reinforcement and social skills to depression, as opposed to psychopathology in general, were examined.

METHOD

Subjects

Nineteen depressed and 12 nondepressed psychiatric inpatients at Kitchener-Waterloo Hospital, and 16 nondepressed nonmedical hospital employees served as

subjects in the present study. The depressed group was comprised of eight males and 11 females, while the two nondepressed groups were each made up equally of males and females. Criteria for inclusion in the study for the two patient groups (adapted from Abramson, Garber, Edwards, & Seligman, 1978) were (a) current hospitalization between 3 and 31 days; (b) age between 18 and 60 years; (c) minimum of an eighth-grade education; and (d) no evidence of organicity, alcoholism, drug addiction, or psychotic ideation.

Group assignment for the patients was based on the psychiatric research diagnostic criteria of Feighner and his associates (Feighner, Robins, Guze, Woodruff, Winokur, & Munoz, 1972), and scores on the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, and Erbaugh, 1961) and the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960). A psychiatric patient was classified as depressed if he or she (a) obtained a diagnosis of "definite" depressive syndrome according to the criteria of Feighner et al.; and (b) evidenced moderate to severe levels of depression, defined as a minimum score of 11 on the BDI and a minimum score of 14 on the HRSD. A psychiatric patient was classified as nondepressed if he or she (a) did not meet Feighner et al.'s criteria for a psychiatric diagnosis of either "definite" or "probable" depressive syndrome; and (b) obtained scores of nine or less on the BDI and 10 or less on the HRSD.

Nonmedical hospital employees (e.g., accountants, cleaning staff, maintenance staff, secretarial staff, etc.) served as nondepressed normal control subjects. Criteria for inclusion in this group were (a) a BDI score of nine or less; and (b) no reported current or major past problems with depression.

Procedure

Potential subjects were approached by the experimenter requesting their participation in an assessment of the way in which they express their attitudes and opinions. Patients were then assessed by a psychologist on the inpatient psychiatric unit according to the criteria outlined above, and, if they met the required criteria, were assigned to the appropriate subject group. Each subject began participation in the study proper within two days of being assessed.

Each subject was required to interact with an opposite-sex, age-matched stranger. The "strangers" were hospital employees who consented to participate in the study, and who were not used as subjects. Each subject interacted with a different stranger.

A version of the Revealed Differences Questionnaire (RDQ; Strodtbeck, 1951) was used to elicit discussion in each dyad. This questionnaire requires each individual to express his opinion regarding each of 19 presented situations. An example of a situation from the RDQ is as follows:

> Janice has been spending a lot of time with a girl in her high school class that her parents disapprove of. They feel this girl is a bad influence and want Janice to stop seeing her. Janice feels she has a right to pick her own friends. Do you think Janice is right in this?
>
> Yes_____
>
> No _____

The relevance of each situation to the individual was assessed by requiring the individual to respond to two questions following each situation on the questionnaire: "Have you had a similar problem yourself?", and "Have you known other people who have had similar problems?".

The experimenter met with each dyad, and explained that the purpose of the study was to examine the way in which people express their attitudes and opinions. The experimenter went on to explain that both members of the dyad would be required to respond individually to a number of situations described on a questionnaire, and would then be asked to discuss some of their responses with each other. The experimenter explained that the session would be videotaped. Each member of the dyad was presented with his/her copy of the RDQ and was requested to respond to all the questions, and to refrain from discussing the items while filling out the questionnaire.

After both members of the dyad had completed the questionnaire, the experimenter collected the questionnaires, left the room, and selected six situations which the members of the dyad had disagreed with respect to their selected alternatives. If the members of any dyad disagreed on more than six situations, those situations which the members rated as relevant were selected first. The experimenter returned to the room and told the members of the dyad that they were to try to resolve their differences on each of the six situations that were selected for discussion. The members of the dyad were further told that they should feel free to discuss their points of view, defend their positions, and express their thoughts and feelings regarding each situation.

After clarifying any questions that were raised, the experimenter left the room, leaving the two participants alone in the room to discuss the questionnaire items. Each dyad was allowed to complete the task, and 15 minutes of discussion time was videotaped. While the discussion was taking place, a graduate student in clinical psychology, blind with respect to which experimental group each subject belonged, rated the subject from behind a one-way mirror on 21 descriptors of interpersonal style (Youngren & Lewinsohn, 1980). Each descriptor falls into one of two rationally-

derived scales: a Social Skill scale (15 items; e.g., "friendly", "assertive") and a Cognitive scale (6 items; e.g., "anxious", "has a positive outlook"). Each descriptor is rated on a 7-point scale, anchored at one end with the phrase "Extremely Characteristic" and at the other with "Not at all Characteristic".

When the discussion was finished, the experimenter returned to the room. The stranger was taken to another room by a research assistant, while the subject remained in the discussion room with the experimenter, and completed a number of forms assessing his or her perceptions of the task.

In addition to completing these forms, subjects viewed the 15-minute videotaped segment of the interaction they had just completed. The tape was presented in 30-second intervals, and at the end of each interval, subjects were asked to evaluate their performance during that interval. A small metal box with two buttons on the top, labelled "REWARD" and "PENALTY", was placed on a table in front of the subject, and subjects were given the opportunity to reward or punish their performance during each interval. They were instructed that if they were satisfied with their performance during an interval, at the end of that interval they should press the "REWARD" button. They were told that pressing this button was analagous to saying to themselves, "Boy, I was pretty good there. Keep up the good work." If they were dissatisfied with their performance, they were to press the "PENALTY" button. Pressing <u>this</u> button was analagous to saying to themselves, "Boy, I blew it that time. That wasn't very good." Subjects were further instructed that if they were neither satisfied nor dissatisfied with their performance in any interval, they could choose not to press either button.

Following the completion of this phase of the study, each subject was debriefed as to the purpose of the investigation. Any questions concerning the study were

answered fully, and all subjects were thanked for their participation.

RESULTS

Before the analyses concerning self-reinforcement and social skill are discussed, preliminary analyses which were conducted to assess potential confounding factors and to determine that subjects assigned to groups did in fact differ with respect to the measures of depression will be presented.

SUBJECT CHARACTERISTICS

The three subject groups were balanced as nearly as possible with respect to sex. Univariate analyses of variance (ANOVAs) were conducted on the age, average income, and number of years of formal education of all subjects. The only significant group effect was obtained on the number of years of formal education, $F(2, 44) = 4.57$, $p < .05$. A Scheffe test of the difference between conditions indicated that the hospital employees had significantly ($p < .05$) more years of formal education than did the depressed patients. The nondepressed patients did not differ from either the depressed patients or the hospital employees on this variable.

Further analyses were conducted in order to evaluate the effectiveness of the procedure used to assign subjects to the depressed and nondepressed groups. All subjects in the present study completed the Beck Depression Inventory (BDI), whereas only subjects in the two patient groups were rated on the Hamilton Rating Scale for Depression (HRSD). Group means and standard deviations for scores on the BDI and the HRSD, as well as for the number of days in hospital prior to participation in the study and the number of previous psychiatric admissions to hospital, are presented in Table 1. A univariate ANOVA was conducted for scores on the BDI,

and as anticipated, significant group differences were obtained, $F(2, 44) = 71.25$, $p < .001$. A Scheffe test of the difference between conditions indicated that subjects in the two nondepressed groups did not differ from each other, but obtained significantly ($p < .001$) lower scores on the BDI than subjects in the depressed group. T-tests between the two patient groups were conducted for scores on the HRSD, as well as for the number of days in hospital prior to participation in the study and the number of previous psychiatric admissions to hospital. As expected, the two patient groups differed with respect to their scores on the HRSD, $t(29) = 8.36$, $p < .001$. No group differences were found with respect to either the number of days in hospital prior to participation in the study, $t(29) = 1.20$, $p > .1$, or the number of previous psychiatric admissions to hospital, $t(29) = 0.99$, $p > .1$.

TABLE 1

Means and standard deviations of depressed and nondepressed psychiatric patients and nondepressed hospital employees on the BDI, the HRSD, number of days in hospital prior to study, and number of previous admissions

	Depressed Psychiatric Patients		Nondepressed Psychiatric Patients		Nondepressed Hospital Employees	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
BDI	25.79	8.90	6.42	2.64	3.00	1.73
HRSD	23.21	6.19	7.25	2.83	----	----
Days in Hospital	11.11	6.50	16.08	16.27	----	----
Previous Admissions	0.79	1.03	0.42	1.00	----	----

SELF-REINFORCEMENT AND DEPRESSION

Before the results of the measures of self-reinforcement are presented, it is important to briefly discuss a methodological concern. Recall that subjects in this study participated in a relatively unstructured dyadic

interaction. Fifteen minutes of each session was videotaped, and because the tape was replayed for the subjects in 30-second intervals, all subjects should theoretically have had 30 intervals for which to evaluate their performance, and, therefore, 30 opportunities to administer a self-reinforcement or a self-punishment. Not all dyads, however, interacted for the full 15 minutes, and consequently, not all subjects had 30 intervals to use in evaluating their performance. Therefore, a univariate ANOVA was conducted on the number of intervals for evaluation available to subjects in each group. No significant group effect was obtained, $F(2,44) = 0.823$, $p > .1$. For purposes of analysis, therefore, prorated measures of self-reinforcement and self-punishment were obtained by multiplying the number of self-reinforcements and self-punishments administered by each subject by 30, and dividing that number by the number of intervals available to that subject.

Group means and standard deviations for the prorated number of self-reinforcements and self-punishments are presented in Table 2. Univariate ANOVAs were conducted on each of these measures, and both analyses yielded significant group differences. Subjects in the three groups administered significantly different numbers of self-reinforcements, $F(2, 44) = 5.766$, $p < .01$. A Scheffe test for the difference between conditions revealed that the depressed subjects administered significantly ($p < .01$) fewer self-reinforcements than the hospital employees, but did not differ on this measure from the nondepressed patients. However, an orthogonal contrast revealed that the two patient groups combined administered significantly fewer self-reinforcements than did the hospital employees, $t(44) = 3.089$, $p < .005$. With respect to the number of self-punishments administered [$F(2, 44) = 4.428$, $p < .02$], a Scheffe test revealed that the depressed patients administered significantly ($p < .05$) more self-punishments than did the hospital employees, but did not differ

significantly on this measure from the nondepressed patients. Again, an orthogonal contrast demonstrated that the two patient groups combined administered a significantly greater number of self-punishments than the hospital employees, $t(44) = 2.898$, $p < .01$. While the depressed patients administered fewer self-reinforcements and a greater number of self-punishments than the hospital employees, then, they did not differ on either of these measures from the nondepressed patients. Furthermore, on both of these measures, the two patient groups combined differed significantly from the nondepressed hospital employees.

TABLE 2

Means and standard deviations of depressed and nondepressed psychiatric patients and nondepressed hospital employees on the prorated number of self-reinforcements and self-punishments administered

	Depressed Psychiatric Patients		Nondepressed Psychiatric Patients		Nondepressed Hospital Employees	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Self-Reinforcements	8.51	5.73	10.90	5.12	16.03	8.29
Self-Punishments	6.48	6.99	5.92	5.40	1.38	2.09

SOCIAL SKILL AND DEPRESSION

Group means and standard deviations for scores on the Social Skill and Cognitive scales are presented in Table 3. Univariate ANOVAs were conducted on each of these measures, and significant main effects for diagnostic group were obtained for both the Social Skill scale, $F(2, 44) = 3.78$, $p < .05$, and the Cognitive scale, $F(2, 44) = 9.74$, $p < .001$. For both scales, Scheffe tests for the difference between means revealed that the depressed patients obtained significantly lower ratings than the hospital employees (Social Skill, $p < .05$; Cognitive, $p < .001$).

TABLE 3

Means and standard deviations of depressed and nondepressed psychiatric patients and nondepressed hospital employees on the Social Skill and Cognitive scales

	Depressed Psychiatric Patients		Nondepressed Psychiatric Patients		Nondepressed Hospital Employees	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Social Skill	4.47	0.85	4.75	0.49	5.12	0.61
Cognitive Style	4.05	0.94	4.49	0.63	5.25	0.73

SELF-REINFORCEMENT AND SOCIAL SKILL

To examine the possibility that the low rate of self-reinforcement and high rate of self-punishment demonstrated by the depressed patients may be a reflection of their level of social skill, analyses of covariance were conducted on the number of administered self-reinforcements and self-punishments, with scores on the Social Skill scale used as a covariate.

Only on the analysis of covariance for the number of self-reinforcements administered was a significant main effect for diagnostic group obtained, $F(2, 43) = 3.65$, $p < .05$. The main effect for group for the number of self-punishments administered was not significant, $F(2, 43) = 1.85$, $p > .1$.

Analyses of covariance were also conducted for the number of self-reinforcements and self-punishments administered using scores on the Cognitive scale as a covariate. On neither of these analyses was a significant main effect for diagnostic group obtained [Reinforcements, $F(2, 43) = 2.66$, $p > .05$; Punishments, $F(2, 43) = 0.51$, $p > .1$].

D I S C U S S I O N

The present study was designed to examine the relationship between clinical depression, self-reinforcement, and social skill on an interpersonal task. In addition, the specificity of deficits in self-reinforcement and social skills to depression, as opposed to global psychopathology, was assessed.

Previous investigations of self-reinforcement in depression have typically used two groups of subjects -- "depressives" and "normals". In order to fully appreciate the implications of this practice, the discussion of the present study initially will consider only the reults obtained from the "depressive" and "normal" groups in this investigation -- the depressed psychiatric inpatients and the nondepressed hospital employees.

With respect to self-reinforcement, the depressed patients administered significantly fewer self-reinforcements and a significantly greater number of self-punishments than the nondepressed hospital employees. On the basis of this finding alone, this aspect of the present study appears to have replicated the results of previous investigations of self-reinforcement processes in depression. Rozensky et al. (1977), for example, found that depressed medical patients administered fewer self-reinforcements and more self-punishments for their performance on a word recognition memory task than did nondepressed medical patients. Similarly, Nelson and Craighead (1977) found depressed university students to self-reinforce less than nondepressed students on an ambiguous laboratory task, while Roth et al. (Note 1) found that depressed university students administered a greater number of self-punishments than did nondepressed students. The results of both these investigations and the present study, using depressed individuals and nondepressed normals as subjects, suggest that depression is characterized by a

relatively low rate of self-reinforcement and a relatively high rate of self-punishment.

Recall, however, that these investigations have used only depressed individuals and nondepressed normals as subjects; furthermore, to this point, only the findings from the present study concerning differences between the depressed patients and the nondepressed hospital employees have been considered. Although the results of the present study discussed so far are consistent with the findings of these previous investigations, the possibility still remains that the obtained deficits in self-reinforcement postulated to be a function of depression are in fact characteristic of psychopathology in general. One of the purposes of the present study was to address this possibility, and indeed, when the performance of the nondepressed psychiatric patients in the present study is examined in relation to the performance of the depressed patients and the nondepressed hospital employees, the conceptualization of depression gleaned from the consideration of the results of only the latter two groups is altered substantially.

While, as predicted by Rehm's (1977) self-control model of depression, the depressed patients administered fewer self-reinforcements and a greater number of self-punishments than did the hospital employees, they performed no differently on these measures than the nondepressed patients. This finding, in conjunction with the results obtained by Barling and Fincham (1979) demonstrating that subjects who scored low on a measures of general psychological adjustment administered fewer self-reinforcements than did high-scoring subjects, suggests that the deficits in self-reinforcement postulated to be peculiar to depression may in fact be characteristic of psychopathology in general. Future research in depression must include a psychiatric control group if confident statements are to be made regarding the nature of specific psychological processes operative in depressive disorders.

Similar results were obtained in the present study with respect to social skills. The depressed psychiatric patients obtained lower ratings on the Social Skill scale than the nondepressed hospital employees, but did not differ on this measure from the nondepressed psychiatric patients. Lewinsohn (1974; Libet & Lewinsohn, 1973) has been perhaps the strongest proponent of a social skills deficit conceptualization of depression. Much of his research has indicated that depressed persons are less socially skillful than either "other-pathology" individuals or "normal" controls. The present study, in suggesting that at least part of the variance contributing to the lower level of social skills demonstrated by the depressed patients can be explained by general psychological deviation, appears to contradict Lewinsohn's findings.

A number of methodological differences between Lewinsohn's investigations and the present study may help account for this discrepancy. Different instruments were used, for example, in defining depression and selecting subjects. Lewinsohn typically uses scores on the MMPI and the Feelings and Concerns checklist developed by Grinker, Miller, Sabshin, Nunn and Nunnally (1961) in selecting depressed and nondepressed subjects. In the present study, depression was operationalized by cut-off scores on the BDI, the HRSD, and Feighner et al.'s (1972) diagnostic criteria. Thus, five different measures of depression were used in these two lines of research, and it may be that the types of depression and psychological deviation manifested by the subjects in Lewinsohn's investigations and that demonstrated by the subjects in the present study are qualitatively different. More work is needed in order to assess this possibility.

A related point of difference concerns the type of subject population used in Lewinsohn's work and that used in the present study. Lewinsohn typically uses university students (e.g., Libet & Lewinsohn, 1973) or people in the

community responding to media advertisements for a depression treatment program (e.g., Youngren & Lewinsohn, 1980) as subjects. Subjects in the present study were inpatients on a psychiatric unit of a general hospital. It is not unlikely that the subjects who comprised the nondepressed psychiatric control group in the present study were manifesting a higher degree of "psychological deviation" than the nondepressed pathological control groups in Lewinsohn's investigations. The lack of a statistically significant difference in the level of social skill between the depressed and nondepressed patients in the present study, therefore, may well be due to the higher degree of pathology manifested by these subjects.

A low rated level of social skill in psychiatric inpatients as a group, although not consistent with Lewinsohn's findings, is not altogether surprising. Phillips (1978), for example, recently presented a formulation of psychopathology as involving primarily deficits in social skills, and numerous investigations have reported the use of training in social skills in treating various forms of psychopathology (e.g., Curran, 1975; Goldsmith & McFall, 1975). The results of the present study suggest that, rather than being unique to depression, poor social skills are characteristic of psychopathology in general. It may be that different diagnostic groups manifest qualitatively different skills deficits, and future research may profitably focus on refining instruments with which to assess this possibility.

The final issue to be discussed here concerns the relationship between self-reinforcement and social skills. It was hypothesized that the low level of self-reinforcement demonstrated by depressed subjects might be a function of a lower level of social skill. When level of social skill was partialled out, a significant main effect for diagnostic group was still obtained for the number of self-reinforcements administered, although the effect was not as

strong as that obtained without taking social skills level into consideration. There was, however, no longer a main effect for group for the number of self-punishments administered.

It appears, then, that although levels of social skill and self-reinforcement are related, the low rate of self-reinforcement in the depressed patients cannot be fully accounted for by their lower level of social skill. This finding, considered with the results of investigations which have shown self-reinforcement to be independent of actual performance on an impersonal laboratory task (e.g., Roth et al., Note 1; Rozensky et al., 1977), suggests that self-reinforcement is a more involved process than merely a reflection of actual performance. It is possible that the rate of self-reinforcement is more strongly related to perception of performance than it is to the actual performance level; the fact that using scores on the Cognitive scale as a covariate erased group differences in both the number of self-reinforcements and self-punishments administered by subjects in the present study strengthens this possibility. Future research, then, might be directed toward an examination of the variables contributing to the lowered rate of self-reinforcement in depression, and in psychopathological populations in general. With a better understanding of these mechanisms, we can work towards the development of more effective approaches to the treatment of psychopathological disorders.

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F O O T N O T E

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